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| 10/702,689 | 11/06/2003 | Vinay Mehta | FDN-2815 | 8995 |
| 7590 04/21/2008 GAF MATERIALS CORPORATION Attn: William J. Davis, Esq. Legal Department, Building No. 10 1361 Alps Road Wayne, NJ 07470 | | | | |
| EXAMINER | | | | |
| COLE, ELIZABETH M | | | | |
| ART UNIT | | PAPER NUMBER | | |
| 1794 | | | | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/702,689

Applicant(s)

MEHTA ET AL.

Examiner

Elizabeth M. Cole

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Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 2/5/08.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 9-33 is/are pending in the application.
- 4a) Of the above claim(s) 19-29 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 9-18 and 30-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)
Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

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1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2/5/08 has been entered.

1. Claims 1-5, 9-17,30-32 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification as originally filed does not provide support for the limitation that, that the film or coated laminate has a minimum moisture vapor transmission rate of greater than 2 grams per square meter per day but less than 500 grams per square meter per day.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-2, 4-5, 10, 12-14, 17, 18, 30,32-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Albertone et al, U.S. Patent No. 6,645,336 in view of WO 9637668 and Krueger, U.S. Patent No. 5,691,034. Albertone discloses a breathable film which may comprise polyether, polyurethane, polyether ester, polyether amide, polyvinyl alcohol polymers and copolymers. See col. 4, lines 37-56. The breathable film is bonded to a substrate such as a polyolefin nonwoven fabric. See col. 5, lines 45- col. 7, lines 3. A tie layer of copolymers comprising ethylene vinyl acetate can be used to facilitate bonding between the film and nonwoven substrate layer. With regard to claim 17, claim 17 recites a statement of intended use and does not structurally further limit the structure set forth in claim 1. The laminated film is useful in roofing. The thickness of the film encompasses the claimed range. See 20-60 um. While Albertone does not particularly state the claimed MVTR, since Albertone teaches employing a permeable film, and teaches that the permeability of the film can be controlled by controlling various factors such as the thickness of the layers and/or the chain length of the polymer, (see col. 12, lines 28-44), therefore, Albertone teaches that the MVTR is a result effective variable and therefore, it would have been obvious to one of ordinary skill in the art to have selected the desired MVTR through the process of routine experimentation which had the optimum MVTR. Albertone differs from the claimed invention because while Albertone teaches that the substrate can be any woven or nonwoven material, it does not specifically teach that the substrate is a glass fiber fabric. WO '668 teaches at page 8, fourth full paragraph, that substrates which comprise mineral fibers are equivalent to substrates which comprise organic fibers for

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use as the fibrous substrate in forming roof underlayments. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have employed a glass fiber substrate as the fibrous substrate in Albertone, motivated by the teaching of WO '668 that such substrates were recognized in the art as equivalents for this purpose.

4. Albertone does not disclose adding either a silane agent or a maleic anhydride grafted polypropylene to the underlayment as an adhesion promoter. Krueger teaches at col. 6, lines 55-66, that tie layers in structures such as Albertone may further comprise adhesion promoters such as silanes and maleic anhydride modified polymers. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included the adhesion promoting agents of Krueger in the tie layers of Albertone in order to improve and facilitate the bonding of the layers.

5. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Albertone et al, U.S. Patent no. 6,645,336 in view of WO 9637668 and Krueger as set forth above, and further in view of Kuhnel et al, U.S. Patent No. 4,511,619. Albertone discloses a breathable laminate which comprises a film layer and a fabric substrate layer. Albertone does not teach disposing the film on both sides of the fabric substrate layer. Kuhnel teaches that in forming roofing materials that the film can be disposed on both sides of the fabric so that the fabric can strengthen the film. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have disposed film layers on both sides of the substrate in Albertone, in order to allow the substrate to fully strength the film layers.

6. Claims 11 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Albertone et al, U.S. Patent No. 6,645,336 in view of WO 9637668 and Krueger as set forth above, and further in view of Kirchberger et al, U.S. Patent No. 6,300,257. Albertone discloses a breathable laminate as set forth above. Albertone does not disclose that the polymer layer or the tie layer comprises methyl methacrylate. Kirchberger teaches that methyl methacrylate can be added to layers of breathable roofing materials in order to improve the interlaminar bonding strength of layers which contain ethylene copolymers. See col. 3, lines 9-17. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have added methyl methacrylate to the tie layers and film layers of Albertone, motivated by the expectation that this would further enhance the interlaminar bonding strength of the material.

7. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Albertone in view of WO 9637668 and Krueger as applied to claims above, and further in view of EP 1,245,620. Albertone teaches a roofing underlayment as set forth above. Albertone does not disclose incorporating additives into the breathable layer. EP '620 discloses a breathable film material comprising a polyolefin resin such as polypropylene which is laminated to a substrate such as a polyolefin nonwoven fabric. See paragraph 0001. The material is suitable for use in forming waterproofing sheets for roofs. The film may further comprise additives such as alumina to impart heat and flame resistance. See paragraph 0009. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have added flame retardants such

as those taught in EP '620 to the underlayment of Albertone, motivated by the expectation that this would impart flame retardant properties to the underlayment of Albertone.

8. Claims 1-2, 4-5, 10, 12-14, 17, 18, 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Albertone et al, U.S. Patent No. 6,645,336 in view of WO 9637668 and George et al, U.S. Patent No. 4,282,283. Albertone discloses a breathable film which may comprise polyether, polyurethane, polyether ester, polyether amide, polyvinyl alcohol polymers and copolymers. See col. 4, lines 37-56. The breathable film is bonded to a substrate such as a polyolefin nonwoven fabric. See col. 5, lines 45-col. 7, lines 3. A tie layer of copolymers comprising ethylene vinyl acetate can be used to facilitate bonding between the film and nonwoven substrate layer. With regard to claim 17, claim 17 recites a statement of intended use and does not structurally further limit the structure set forth in claim 1. The laminated film is useful in roofing. The thickness of the film encompasses the claimed range. See 20-60 μm . While Albertone does not particularly state the claimed MVTR, since Albertone teaches employing a permeable film, and teaches that the permeability of the film can be controlled by controlling various factors such as the thickness of the layers and/or the chain length of the polymer, (see col. 12, lines 28-44), therefore, Albertone teaches that the MVTR is a result effective variable and therefore, it would have been obvious to one of ordinary skill in the art to have selected the desired MVTR through the process of routine experimentation which had the optimum MVTR. Albertone differs from the claimed invention because while Albertone teaches that the substrate can be any

woven or nonwoven material, it does not specifically teach that the substrate is a glass fiber fabric. WO '668 teaches at page 8, fourth full paragraph, that substrates which comprise mineral fibers are equivalent to substrates which comprise organic fibers for use as the fibrous substrate in forming roof underlayments. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have employed a glass fiber substrate as the fibrous substrate in Albertone, motivated by the teaching of WO '668 that such substrates were recognized in the art as equivalents for this purpose.

9. Albertone does not disclose adding a titanate coupling agent to the underlayment as an adhesion promoter. George et al, U.S. Patent No. 4,282,283 teaches in example 1 that titanate coupling agents may be added to compositions in order to facilitate the bonding of a polymeric material and a fiberglass fabric. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included the adhesion promoting agents of George in the tie layers of Albertone in order to improve and facilitate the bonding of the layers.

10. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Albertone et al, U.S. Patent no. 6,645,336 in view of WO 9637668 and George as set forth above, and further in view of Kuhnel et al, U.S. Patent No. 4,511,619. Albertone discloses a breathable laminate which comprises a film layer and a fabric substrate layer. Albertone does not teach disposing the film on both sides of the fabric substrate layer. Kuhnel teaches that in forming roofing materials that the film can be disposed on both sides of the fabric so that the fabric can strengthen the film. Therefore, it would have

been obvious to one of ordinary skill in the art at the time the invention was made to have disposed film layers on both sides of the substrate in Albertone, in order to allow the substrate to fully strength the film layers.

11. Claims 11 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Albertone et al, U.S. Patent No. 6,645,336 in view of WO 9637668 and George as set forth above, and further in view of Kirchberger et al, U.S. Patent No. 6,300,257. Albertone discloses a breathable laminate as set forth above. Albertone does not disclose that the polymer layer or the tie layer comprises methyl methacrylate. Kirchberger teaches that methyl methacrylate can be added to layers of breathable roofing materials in order to improve the interlaminar bonding strength of layers which contain ethylene copolymers. See col. 3, lines 9-17. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have added methyl methacrylate to the tie layers and film layers of Albertone, motivated by the expectation that this would further enhance the interlaminar bonding strength of the material.

12. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Albertone in view of WO 9637668 and George as applied to claims above, and further in view of EP 1,245,620. Albertone teaches a roofing underlayment as set forth above. Albertone does not disclose incorporating additives into the breathable layer. EP '620 discloses a breathable film material comprising a polyolefin resin such as polypropylene which is laminated to a substrate such as a polyolefin nonwoven fabric. See paragraph 0001. The material is suitable for use in forming waterproofing sheets

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for roofs. The film may further comprise additives such as alumina to impart heat and flame resistance. See paragraph 0009. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have added flame retardants such as those taught in EP '620 to the underlayment of Albertone, motivated by the expectation that this would impart flame retardant properties to the underlayment of Albertone.

13. Applicant's arguments filed 2/5/08 have been fully considered but they are not persuasive.

14. Applicant's argues that there is no requirement that there be literal support for the claimed limitation regarding the upper point of the range of MVTR. However, the specification only provides a minimum value for the MVTR and does not provide for the claimed range. The specification does not describe that the invention comprised a material having a MVTR within a particular range, and that therefore those with a MVTR higher than the higher endpoint were excluded by the invention. Rather, the specification conveys to the skilled artisan that the claimed invention comprised the particular layers and was breathable as that term was used in the specification which meant that the material had a minimum MVTR. The specification does not describe an invention wherein the MVTR of the material was within the claimed range, or an invention wherein materials with values which were above the claimed value of 660 grams per square meter per day were excluded or were not the subject of the invention. Therefore, the rejection is maintained.

15. Applicant argues that WO '668 does not teach how to adhere the breathable film to the glass fiber layer. However, Albertone already teaches how to make the breathable film and teaches that the fabric layer can be "any fabric". WO '668 is relied on to show the equivalence of mineral fibers and synthetic fibers for this purpose. Krueger teaches incorporating an adhesion promoting agent into a polymeric layer in order to promote adhesion of the layer to fiber glass materials.

16. Applicant argues that Albertone, Krueger and George disclose the use of a tie layer. However, the instant claims do not preclude the presence of a tie layer.

17. Applicant argues that the examiner is using an improper "obvious to try" rationale in support of the obviousness rejection because Albertone does not give any indication of which non-organic materials readily adhere to the film of Albertone and does not provide guidance as to which non-organic materials are likely to be successful. However, WO '668 teaches the equivalence of mineral and polymeric fibers for use in roofing underlayments. Further, Albertone teaches that any fabric can be used. Therefore, the person of ordinary skill in the art would have been motivated to employ glass fibers in view of their art recognized equivalence for this purpose.

18. Applicant argues that none of the references add an adhesion improvement component that is added to the thermoplastic film and/or the glass fiber-based substrate. However, both Krueger and George teach employing adhesion promoters in order to promote the bonding of polymeric materials to fiberglass fabrics.

19. Applicant disagrees that the selection of the MVTR would have been obvious through the process of routine experimentation and that the instant MVTR was not done

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with routine experimentation but through a rigorous selection process. However, the rejection does not state that Applicant discovered the MVTR through routine experimentation, but rather states that Albertone teaches that the MVTR can be controlled and therefore, the person of ordinary skill in the art would have been able to have selected the desired MVTR through the process of routine experimentation which had the optimum MVTR in view of the teaching of Albertone that the MVTR is directly related to various factors such as the thickness of the layers and/or the chain length of the polymer, (see col. 12, lines 28-44).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth M. Cole whose telephone number is (571) 272-1475. The examiner may be reached between 6:30 AM and 6:00 PM Monday through Wednesday, and 6:30 AM and 2 PM on Thursday.

The examiner's supervisor Rena Dye may be reached at (571) 272-3186.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

The fax number for all official faxes is (571) 273-8300.

/Elizabeth M. Cole/
Primary Examiner, Art Unit 1794

e.m.c